FINDPATTERNS on swp:* allowing 0 mismatches

```
1 (H,R,Y)(S,G,A,T)(D,E)GTX(T,S)(T,S)(D,E)XSKQXEEAVRLX(2)(D,E)XLKNGGXSSGAX(3)(S

EXE3_HELHO  ck: 9591  len: 39   ! P20394 heloderma horridum horridum (mexican

    (H,R,Y)(S,G,A,T)(D,E)GTX(T,S)(T,S)(D,E)XSKQXEEAVRLX(2)(D,E)XLKNGG
    (H)(S)(D)GTx(T)(S)(D)xSKQxEEAVRLx(2)(E)xLKNGGxSSGAx(3)(S)
 1: HSDGTFTSDLSKQMEEEAVRLFIEWLKNGGPSSGAPPPS

EXE4_HELSU  ck: 973  len: 87   ! P26349 heloderma suspectum (gila monster).

       (H,R,Y)(S,G,A,T)(D,E)GTX(T,S)(T,S)(D,E)XSKQXEEAVRLX(2)(D,E)XLKNGG
       (H)(G)(E)GTx(T)(S)(D)xSKQxEEAVRLx(2)(E)xLKNGGxSSGAx(3)(S)
 48: SKIKR  HGEGTFTSDLSKQMEEEAVRLFIEWLKNGGPSSGAPPPS  G
```

Databases searched:
SWISS-PROT, Release 38.1, Released on 20Nov1999, Formatted on 28Dec1999
SPTREMBL, Release 12.0, Released on 1Nov1999, Formatted on 27Dec1999

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Total finds:               2
Total length:     99,198,988
Total sequences:     308,107
CPU time:          13:01.04
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Find patterns Search cover Swiss prot & PIR

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!!AA_SEQUENCE 1.0
ID   EXE3_HELHO     STANDARD;      PRT;    39 AA.
AC   P20394;
DT   01-FEB-1991 (Rel. 17, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   01-MAY-1992 (Rel. 22, Last annotation update)
DE   EXENDIN-3.
OS   Heloderma horridum horridum (Mexican beaded lizard).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Lepidosauria;
OC   Squamata; Scleroglossa; Anguimorpha; Helodermatidae; Heloderma.
RN   [1]
RP   SEQUENCE.
RC   TISSUE=VENOM;
RX   MEDLINE; 91056067.
RA   ENG J., ANDREW P.C., KLEINMAN W.A., SINGH L., RAUFMAN J.-P.;
RT   "Purification and structure of exendin-3, a new pancreatic
RT   secretagogue isolated from Heloderma horridum venom.";
RL   J. Biol. Chem. 265:20259-20262(1990).
CC   -!- FUNCTION: HAS A VIP/SECRETIN-LIKE BIOLOGICAL ACTIVITY. INTERACTS
CC       WITH THE EXENDIN RECEPTOR.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; A23674; HWGH3Z.
DR   HSSP; P01274; 1GCN.
DR   PROSITE; PS00260; GLUCAGON; 1.
DR   PFAM; PF00123; hormone2; 1.
KW   Glucagon family; Venom; Amidation.
FT   MOD_RES      39     39       AMIDATION.
SQ   SEQUENCE   39 AA;  4204 MW;  AB598FD3 CRC32;
     HSDGTFTSDL SKQMEEEAVR LFIEWLKNGG PSSGAPPPS
```

EXE3_HELHO   Length: 39   March 20, 2000 11:24 Type: P Check: 9591 ..

```
   1 HSDGTFTSDL SKQMEEEAVR LFIEWLKNGG PSSGAPPPS
```

```
!!AA_SEQUENCE 1.0
ID   EXE4_HELSU     STANDARD;      PRT;    87 AA.
AC   P26349;
DT   01-MAY-1992 (Rel. 22, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-DEC-1999 (Rel. 39, Last annotation update)
DE   EXENDIN-4 PRECURSOR.
OS   Heloderma suspectum (Gila monster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Lepidosauria;
OC   Squamata; Scleroglossa; Anguimorpha; Helodermatidae; Heloderma.
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=VENOM;
RX   MEDLINE; 92218391.
RA   ENG J., KLEINMAN W.A., SINGH L., SINGH G., RAUFMAN J.-P.;
RT   "Isolation and characterization of exendin-4, an exendin-3 analogue,
RT   from Heloderma suspectum venom. Further evidence for an exendin
RT   receptor on dispersed acini from guinea pig pancreas.";
RL   J. Biol. Chem. 267:7402-7405(1992).
RN   [2]
RP   SEQUENCE OF 48-86.
RC   TISSUE=VENOM;
RX   MEDLINE; 97172477.
RA   CHEN Y.E., DRUCKER D.J.;
RT   "Tissue-specific expression of unique mRNAs that encode proglucagon-
RT   derived peptides or exendin 4 in the lizard.";
RL   J. Biol. Chem. 272:4108-4115(1997).
CC   -!- FUNCTION: HAS A VIP/SECRETIN-LIKE BIOLOGICAL ACTIVITY. INTERACTS
CC       WITH THE EXENDIN RECEPTOR.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
```

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DR   EMBL; U77613; AAB51130.1; -.
DR   PIR; A42486; HWGH4G.
DR   PROSITE; PS00260; GLUCAGON; 1.
DR   PFAM; PF00123; hormone2; 1.
KW   Glucagon family; Venom; Amidation; Signal.
FT   SIGNAL        1     23
FT   PEPTIDE      48     86       EXENDIN-4.
FT   MOD_RES      86     86       AMIDATION (G-87 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   87 AA;  9479 MW;  6C1A8FD5 CRC32;
     MKIILWLCVF GLFLATLFPI SWQMPVESGL SSEDSASSES FASKIKRHGE
     GTFTSDLSKQ MEEEAVRLFI EWLKNGGPSS GAPPPSG
```

EXE4_HELSU   Length: 87   March 20, 2000 11:24 Type: P Check: 973 ..

```
   1 MKIILWLCVF GLFLATLFPI SWQMPVESGL SSEDSASSES FASKIKRHGE
  51 GTFTSDLSKQ MEEEAVRLFI EWLKNGGPSS GAPPPSG
```

!!AA_SEQUENCE 1.0
P1;HWGH3Z - exendin-3 - Mexican beaded lizard
C;Species: Heloderma horridum (Mexican beaded lizard)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 21-Nov-1997
C;Accession: A23674
R;Eng, J.; Andrews, P.C.; Kleinman, W.A.; Singh, L.; Raufman, J.P.
J. Biol. Chem. 265, 20259-20262, 1990
A;Title: Purification and structure of exendin-3, a new pancreatic secretagogue isolated from Heloderma horridum venom.
A;Reference number: A23674; MUID:91056067
A;Accession: A23674
A;Molecule type: protein
A;Residues: 1-39 <ENG>
C;Comment: Exendins are venom components that are thought to bind to receptors for vasoactive intestinal peptide and/or secretin on pancreatic acinar cells and to activate adenylate cyclase, resulting in secretion of amylase.
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; secretagogue; venom
F;39/Modified site: amidated carboxyl end (Ser) #status experimental

HWGH3Z   Length: 39   March 20, 2000 10:52   Type: P   Check: 9591 ..

1 HSDGTFTSDL SKQMEEEAVR LFIEWLKNGG PSSGAPPS

!!AA_SEQUENCE 1.0
P1;HWGH4G - exendin-4 - Gila monster
C;Species: Heloderma suspectum (Gila monster)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 21-Nov-1997
C;Accession: A42486
R;Eng, J.; Kleinman, W.A.; Singh, L.; Singh, G.; Raufman, J.P.
J. Biol. Chem. 267, 7402-7405, 1992
A;Title: Isolation and characterization of exendin-4, an exendin-3 analogue, from Heloderma suspectum venom. Further evidence for an exendin receptor on dispersed acini from guinea pig pancreas.
A;Reference number: A42486; MUID:92218391
A;Accession: A42486
A;Molecule type: protein
A;Residues: 1-39 <ENG>
C;Comment: Exendin-4 does not stimulate amylase secretion by pancreatic acinar cells.
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; venom
F;39/Modified site: amidated carboxyl end (Ser) #status experimental

HWGH4G   Length: 39   March 20, 2000 10:52   Type: P   Check: 9570 ..

1 HGEGTFTSDL SKQMEEEAVR LFIEWLKNGG PSSGAPPPS

FINDPATTERNS on pir:* allowing 0 mismatches

1 (H,R,Y)(S,G,A,T)(D,E)GTX(T,S)(T,S)(D,E)XSKQXEEAVRLX{2}(D,E)XLKNGGXSSGAX{3}(S)

HWGH3Z ck: 9591 len: 39 | exendin-3 - Mexican beaded lizard

       (H,R,Y)(S,G,A,T)(D,E)GTX(T,S)(T,S)(D,E)XSKQXEEAVRLX{2}(D,E)XLKNGG
       (H)(S)(D)GTx(T)(S)(D)XSKQXEEAVRLx{2}(E)XLKNGGxSSGAx{3}(S)
1:     HSDGTFTSDLSKQMEEEAVRLFIEWLKNGGPSSGAPPS

HWGH4G ck: 9570 len: 39 | exendin-4 - Gila monster

       (H,R,Y)(S,G,A,T)(D,E)GTX(T,S)(T,S)(D,E)XSKQXEEAVRLX{2}(D,E)XLKNGG
       (H)(G)(E)GTx(T)(S)(D)xSKQxEEAVRLx{2}(E)XLKNGGxSSGAx{3}(S)
1:     HGEGTFTSDLSKQMEEEAVRLFIEWLKNGGPSSGAPPS

Databases searched:
NBRF, Release 62.0, Released on 30Sep1999, Formatted on 26Oct1999

   Total finds: 2
   Total length: 47,169,319
Total sequences: 142,080
      CPU time: 06:16:19